

REMARKS

By this Amendment, Applicants have amended claims 1 and 9, and cancelled claims 2 and 13. Accordingly, claims 1 and 3-12 are pending.

CLAIM REJECTIONS UNDER SECTION 102

Claims 1-3, 5, 6, 9 and 11-13 stand rejected under 35 U.S.C. §102(a) as being anticipated by JP 10-218675. Applicants respectfully traverse this Section 102(a) rejection.

Attached to this Amendment is a certified English translation of the priority document of the subject application. Based on the priority document, the subject application has a priority date of April 24, 1998 which substantially precedes the effective date of JP 10-218675. Accordingly, JP 10-218675 is not prior art as to the subject application, thereby requiring the withdrawal of the Section 102 rejection based on JP 10-218675.

Claims 1, 3 and 9 stand rejected under 35 U.S.C. §102(b) as being anticipated by Hakotani. Applicants respectfully traverse this Section 102(b) rejection.

Claims 1 and 9 are independent claims with claims 3-8 dependent upon claim 1 and claims 10-12 dependent on claim 9. Turning first to claim 1, it is directed to a method of manufacturing a multi-layered ceramic substrate, and includes the following steps:

- forming a shrinkage suppression sheet on at least one face of an unfired green sheet laminated body,
- firing the green sheet laminated body on which the shrinkage suppression sheet is formed on the at least one face, and
- removing the shrinkage suppression sheet by spraying at least

one of ceramic powder and water together with compressed air onto the shrinkage suppression sheet on the at least one face of the green sheet laminated body after firing,

- **wherein the ceramic powder is made from a material which is the same as the material used in the shrinkage suppression sheet.**

Applicants submit that independent claim 1 is patentably distinguished from the Hakotani Patent at least on the basis of the requirement that the ceramic powder is made from a material which is the same as the material used in the shrinkage suppression sheet (hereinafter referred to as the "Ceramic Powder Material Feature" of Applicants claimed invention). In other words, the Hakotani Patent neither teaches nor suggests the Ceramic Powder Material Feature of Applicants claimed invention.

There are numerous advantages associated with the Ceramic Powder Material Feature neither taught, suggested, or appreciated by the Hakotani Patent. These advantages are discussed throughout the specification as originally filed, but are found, for example, at page 3, lines 10-16; page 7, lines 5-20; and page 8, lines 16-19.

The Hakotani Patent relates to a method for producing a multi-layered ceramic substrate for mounting an interconnecting electronic component, such as semiconductor LSI or chip components exterior thereof. The method of the Hakotani Patent is described in general in its Abstract, as well as at column 5, line 31 through to column 7, line 62. But no where in the Hakotani Patent is there any teaching or suggestion of a method of manufacturing a multi-layered ceramic substrate where the ceramic powder for removing the shrinkage suppression sheet is made from a material which is the same material as used in the shrinkage suppression sheet. That is to say, the Hakotani Patent simply lacks the Ceramic Powder Material Feature of Applicants claimed invention.

Based on the foregoing remarks, Applicants respectfully submit that the

Section 102(b) rejection directed to claims 1, 3 and 9 should be withdrawn.

CLAIM REJECTIONS UNDER SECTION 103

Claims 4, 7, 8 and 10 stand rejected under 35 U.S.C. §103 as being unpatentable over JP 10-218675. Applicants respectfully traverse this Section 103(a) rejection.

As Applicants have noted above, JP 10-218675 is not a prior art reference against the subject application, which requires the withdrawal of this Section 103(a) rejection.

Claims 4, 7 and 10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hakotani. Applicants respectfully traverse this Section 103(a) rejection.

Claims 4 and 7 are dependent on claim 1, and claim 10 is dependent on claim 9. Thus these dependent claims include the Ceramic Powder Material Feature of Applicants claimed invention and are therefore patentably distinguished from the Hakotani Patent for the reasons stated above.

Claims 2, 4-6, 8 and 10-13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hakotani in view of Kim. Applicants believe that there is a typographical error at page 5 of the Office Action since the Yam Patent is not specifically mentioned as one of the references on which the Section 103(a) rejection is based, but the Yam Patent is discussed at pages 5 and 6 of the Office Action. Applicants therefore assume that the Office Action is intended to reject claims 2, 4-6, 8 and 10-13 on the basis of the Hakotani, Kim and Yam Patents. Applicants respectfully traverse this Section 103(a) rejection.

The claims which are the subject of this rejection are dependent on either independent claims 1 or 9 and therefore include the Ceramic Powder Material Feature. For the reasons stated above, Applicants respectfully submit

that these dependent claims are patentably distinguished from the Hakotani Patent since the Ceramic Powder Material Feature is neither taught nor suggested in the Hakotani Patent. It is Applicants' contention that this deficiency of the Hakotani Patent is not rectified by the Kim and Yam Patents.

Neither the Kim nor the Yam Patents teach or suggest the Ceramic Powder Material Feature of Applicants' claimed invention. But in addition, the Kim and Yam Patents do not include the "suggestion" or "motivation" needed to support an obviousness rejection under Section 103.

The Yam Patent is directed to a slurry blasting process using a liquid carrier medium, such as water containing a dispersed water-soluble particulate abrasive, to blast clean a surface. More particularly, the slurry blasting process of the Yam Patent concerns wet blasting to remove adherent materials, such as paint, scale, dirt, grease, and the like from solid surfaces. As indicated in the Yam Patent at column 1, lines 12-16, the slurry blasting process is primarily intended for cleaning a solid surface to preserve metal against deterioration, remove graffiti from stone or simply to degrease or remove dirt or other coatings from a solid surface. The application of the Yam process is strikingly different from that of Applicants' method. Thus the Yam Patent not only does not teach or suggest the Ceramic Powder Material Feature of Applicants' claimed invention, but it does not provide the requisite "suggestion" or "motivation" needed to support an obviousness rejection under Section 103.

It is black letter law that prior art references in combination do not make an invention obvious unless something in the prior art references would "suggest" or "motivate" the advantage to be derived from combining their teaching. In re Sernaker, 217 USPQ 1(Fed.Cir.1983). A combination claim is not obvious unless the art contains something to suggest the desirability of the combination. In re Imperato, 179 USPQ 730(CCPA 1973). It is also fundamental in U.S. patent practice in rejecting claims under Section 103 that the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. If the Examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. In re Rijekaert, 9 F.3d 1531, 1532

(Fed.Cir.1993). A *prima facie* case of obviousness is established only when the teaching from the reference itself would appear to have suggested or motivated the claimed subject matter to one skilled in the art. Id.

With respect to the Yam Patent, not only does it not teach the Ceramic Powder Material Feature, but there is no simply no teaching in the Yam Patent that would suggest to one skilled in the art-wishing to achieve Applicants' method-to combine the Yam Patent with the Hakotani or Kim Patents. Applicants' claimed invention provides an advantage over conventional methods in removing the shrinkage suppression sheet in the manufacturing of multi-layered ceramic substrates. Nowhere in the Yam Patent is there any suggestion or motivation that would cause one to combine the teaching of Yam to achieve Applicants' claimed invention. This is likewise true with respect to the Kim Patent.

The Kim Patent, as shown with respect to Figs. 1 and 2 therein, concerns a method for forming protruding, upstanding electrically conducting pins in a ceramic module by the selective abrasion of a surface 18 of a module 10. An abrasive blasting device 40 is disposed adjacent to the surface 18 for directing a stream of abrasive particles 42 against the surface. The abrasive particles 42 strike both metallic conductors 20 and 22 and also the ceramic material of the layer 14. In as much as the ceramic material is relatively hard and brittle as compared to the ductile metallic conductors, the abrasive particles 42 abrade away the ceramic layer 14 at a faster rate than the ductile metallic material of the conductors 20 and 22. Thus, the method of the Kim Patent is directed to the very specific purpose of forming protruding upstanding electrically conducting pins in a multi-layered module.

It is Applicants' position that the Kim Patent not only does not teach the Ceramic Powder Material Feature of Applicants' claimed invention with respect to the manufacture of a multi-layered ceramic substrate, but the Kim Patent does not suggest or motivate (because of its very specific purpose) one skilled in the art to consider using any of the disclosure of the Kim Patent to achieve Applicants' claimed invention. In other words, the Kim Patent simply

lacks the "suggestion" or "motivation" which would lead one skilled in the art to combine the Kim Patent with the Hakotani Patent or Kim Patent to achieve Applicants' claimed invention.

For the Office Action to take the position that Applicants' invention is obvious in view of the Hakotani, Yam and Kim Patents is nothing more than hindsight reconstruction of Applicants' claimed invention, which is improper. Applicants therefore request that the Section 103 rejection based on the Hakotani, Kim and Yam Patents be withdrawn.

In view of the foregoing remarks and amendments, Applicants respectfully submit that claims 1 and 3-12 are in condition for allowance. Reconsideration and allowance of all pending claims are respectfully requested.

Respectfully submitted,


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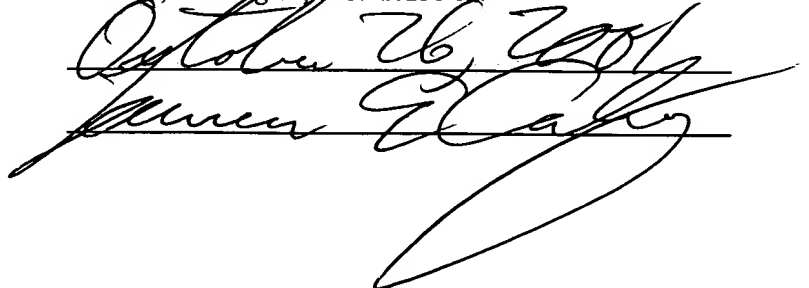
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Enclosure: Version with markings to show changes made
Verification of a Translation w/
English translation of JP 10-114671

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

CLAIMS:

1 1. (Twice Amended) A method for manufacturing a multi-layered
2 ceramic substrate, said method comprising the steps of:

3 forming a shrinkage suppression sheet on at least one face of an unfired
4 green sheet laminated body;

5 firing said green sheet laminated body on which said shrinkage
6 suppression sheet is formed on the at least one face; and

7 removing said shrinkage suppression sheet by spraying at least one of
8 ceramic powder and water together with compressed air onto said shrinkage
9 suppression sheet on the at least one face of said green sheet laminated body
10 after firing;

11 wherein said ceramic powder is made from a material which is the
12 same as a material used in said shrinkage suppression sheet.

1 9. (Twice Amended) A method for manufacturing a multi-layered
2 ceramic substrate, said method comprising the steps of:

3 forming a shrinkage suppression sheet on two faces of an unfired green
4 sheet laminated body;

5 firing said green sheet laminated body; and

6 removing said shrinkage suppression sheet by spraying at least one of
7 water, ceramic powder, and a mixture of ceramic powder and water together
8 with compressed air onto at least one of the two faces of said green sheet
9 laminated body, after firing;

10 wherein said ceramic powder is made from a material which is the same
11 as a material used in said shrinkage suppression sheet.

Claims 2 and 13 have been canceled.